

**WHAT IS CLAIMED IS**

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1. A semiconductor device for fingerprint recognition, comprising:

10 a semiconductor chip having a fingerprint recognition area for performing fingerprint recognition,

a substrate having an opening that corresponds to said fingerprint recognition area, said semiconductor chip being flip chip bonded to said substrate such that said fingerprint  
15 recognition area corresponds to said opening, and

an under-fill material provided between said semiconductor chip and said substrate except for a position where said opening is formed.

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2. The semiconductor device for fingerprint recognition as claimed in claim 1,  
25 wherein said substrate comprises a glass epoxy base material.

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3. The semiconductor device for fingerprint recognition as claimed in claim 1, wherein said substrate comprises a polyimide resin base material.

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4. The semiconductor device for  
fingerprint recognition as claimed in claim 1,  
wherein said substrate is a flexible substrate.

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5. The semiconductor device for  
fingerprint recognition as claimed in claim 1,  
wherein said substrate is a TAB substrate.

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6. The semiconductor device for  
fingerprint recognition as claimed in claim 1,  
wherein said substrate comprises an external  
connection terminal constituted by a solder ball.

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7. The semiconductor device for  
fingerprint recognition as claimed in claim 1,  
wherein said substrate comprises an external  
connection terminal constituted by a connector.

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8. The semiconductor device for  
fingerprint recognition as claimed in claim 1,  
wherein said semiconductor chip performs fingerprint  
recognition using the electrostatic-capacity  
principle, and by a finger sweeping across said  
fingerprint recognition area.

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5                   9. A semiconductor device for fingerprint  
recognition, comprising:

                  a semiconductor chip having a fingerprint  
recognition area for performing fingerprint  
recognition,

10                   a substrate having a first opening that  
corresponds to said fingerprint recognition area,  
and a second opening, said semiconductor chip being  
installed on said substrate such that said  
fingerprint recognition area corresponds to said  
15 first opening, and said semiconductor chip and said  
substrate being electrically connected by a wire  
that is put through said second opening, and

                  a sealing resin for protecting said  
semiconductor chip and said substrate, said sealing  
20 resin being provided on a first surface that is  
opposite to a second surface on which second surface  
said semiconductor chip is installed, said first  
surface and said second surface being of said  
substrate.

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                  10. A semiconductor device for fingerprint  
30 recognition, comprising:

                  a semiconductor chip having a fingerprint  
recognition area for performing fingerprint  
recognition, and having a penetration via, said  
fingerprint recognition area being prepared on a  
35 first surface of said semiconductor chip,

                  a substrate for mounting said  
semiconductor chip, wherein said semiconductor chip

is flip chip bonded to said substrate with a second surface facing said substrate, said second surface being opposite to said first surface, and  
an under-fill material provided between  
5 said semiconductor chip and said substrate.

10 11. A semiconductor device for fingerprint recognition, comprising:

a semiconductor chip having a fingerprint recognition area for performing fingerprint recognition, and a penetration via, said fingerprint  
15 recognition area being prepared on a first surface of said semiconductor chip,

a re-wiring that is formed on a second surface of said semiconductor chip, said second surface being opposite to said first surface,  
20 wherein said re-wiring is electrically connected to said fingerprint recognition area by said penetration via, and

an insulation layer for covering said second surface except for a position where an  
25 external connection terminal of said re-wiring is present.

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